

INFECTIOUS TRACHEOBRONCHITIS (KENNEL COUGH)

BASICS

OVERVIEW

- Any contagious respiratory disease of dogs that is manifested by coughing, and seemingly not caused by canine distemper virus or canine influenza virus

SIGNALMENT/DESCRIPTION of ANIMAL

Species

- Dogs

Breed Predislection

- None

Mean Age and Range

- Most severe in puppies 6 weeks to 6 months old
- May develop in dogs of all ages and often with pre-existing subclinical airway disease (such as abnormal development of the respiratory tract or long-term inflammation of the bronchi (known as “chronic bronchitis”))

SIGNS/OBSERVED CHANGES in the ANIMAL

- Related to the degree of respiratory tract damage and age of the affected dog
- May be nonexistent, mild, or severe with pneumonia
- Most viral, bacterial, and *Mycoplasma* agents spread rapidly from seemingly healthy dogs to other dogs in the same environment; signs usually begin about 4 days after exposure to the infecting agent(s)
- Uncomplicated—cough in an otherwise healthy animal is characteristic; may be dry and hacking, soft and dry, moist and hacking, or sudden and sharp, followed by gagging or spitting up of mucus; excitement, exercise, changes in temperature or humidity of the inspired air, and gentle pressure (such as from collar) on the windpipe (trachea) induce a sudden onset of coughing
- Uncomplicated—cough readily induced with pressure on the windpipe (trachea) during physical examination; lung sounds often normal; otherwise appears healthy
- Severe—marked loss of appetite; cough (when noted) is moist and productive; may see sluggishness (lethargy), difficulty breathing (known as “dyspnea”), and exercise intolerance
- Severe—may have constant, low-grade, or fluctuating fever (39.4 to 40.0° C; 103 to 104° F); may have increased intensity of normal lung sounds; short, rough lung sounds (known as “crackles”) heard with a stethoscope; or (less frequently) whistling or squeaking sounds (known as “wheezes”)

CAUSES

- Viral—canine adenovirus-2; canine parainfluenza virus; canine adenovirus-1; canine reovirus type 1, 2, or 3; canine herpesvirus
- Canine adenovirus-2 and canine parainfluenza virus may damage the lining cells of the respiratory tract to such an extent that invasion by various bacteria and *Mycoplasma* cause severe airway disease
- Bacterial—*Bordetella bronchiseptica*, (with no other respiratory disease-causing agents) produces clinical signs indistinguishable from those of other bacterial causes; *Pseudomonas*, *Escherichia coli*, *Klebsiella*, *Pasteurella*, *Streptococcus*, *Mycoplasma*, and other species equally likely

RISK FACTORS

- Dogs housed with multiple other dogs, such as pet shops, humane society shelters, research facilities, and boarding and training kennels
- Pre-existing subclinical airway disease, such as abnormal development of the respiratory tract or long-term inflammation of the bronchi (known as “chronic bronchitis”)

TREATMENT

HEALTH CARE

- Outpatient—strongly recommended for uncomplicated disease
- Inpatient—strongly recommended for complicated disease and/or pneumonia
- Fluid administration—indicated for complicated disease and/or pneumonia

ACTIVITY

- Enforce rest—for at least 14-to-21 days with uncomplicated disease; for at least the duration of X-ray evidence of pneumonia

DIET

- Good-quality canned or dry commercial food

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

- Antibiotic therapy—amoxicillin/clavulanic acid or doxycycline—initial treatment of uncomplicated disease
- Antibiotic therapy—gentamicin, amikacin, or enrofloxacin—and a first-generation cephalosporin (such as cefazolin) usually effective for severe pneumonia; continue antibiotic therapy for at least 10 days beyond resolution of pneumonia as seen on X-rays
- *Bordetella bronchiseptica*—some antibiotics may not reach adequate levels in the lower respiratory tract to be effective, so administration of these antibiotics by mouth or injection may have limited effectiveness; treating with a fine medicated spray (known as “nebulization”) containing kanamycin, gentamicin, or polymyxin B may reduce bacterial numbers, when administered daily for 3 to 5 days
- Cough suppressants (such as butorphanol or hydrocodone)—effective in decreasing the dry, nonproductive cough, when infection has been controlled
- Drugs to increase the openings in the bronchi and bronchioles (known as “bronchodilators,” such as extended-release theophylline)—may be used to control narrowing of the bronchi and bronchioles due to contraction of smooth muscles in the walls of these airways (known as “bronchospasm”); bronchospasm is detected clinically by whistling or squeaking sounds (wheezes)

FOLLOW-UP CARE

PATIENT MONITORING

- Uncomplicated disease—should respond to treatment in 10 to 14 days; if patient continues to cough 14 days or more after adequate treatment, dog should be evaluated again by your pet’s veterinarian
- Severe disease—repeat chest X-rays until at least 14 days beyond resolution of all clinical signs

PREVENTIONS AND AVOIDANCE

- Shedding of the causative virus and/or bacteria of infectious tracheobronchitis (kennel cough) in respiratory secretions of dogs undoubtedly accounts for the persistence of this problem in kennels, animal shelters, boarding facilities, and veterinary hospitals; thorough cleaning and disinfecting of kennels is necessary to control spread of disease-causing organisms

Viral and Bacterial Vaccines

- Available to control disease caused by the principal infectious agents involved
- *Bordetella bronchiseptica* and canine parainfluenza virus vaccine—may vaccinate puppies using a vaccine applied into the nose (intranasal vaccine) as early as 2 to 4 weeks of age, without interference from maternal antibody; follow-up vaccinations should be administered as directed by your pet’s veterinarian; may vaccinate mature dogs with a one-dose intranasal vaccination (at the same time as their puppies or when they receive other vaccinations, as directed by your pet’s veterinarian)
- Inactivated injectable *Bordetella bronchiseptica* vaccine—administered as two doses, 2 to 4 weeks apart; initial vaccination of puppies is recommended at or about 6 to 8 weeks of age; administer second vaccine at 4 months of age

EXPECTED COURSE AND PROGNOSIS

- Natural course of uncomplicated disease, if untreated—10 to 14 days; simple restriction of exercise and prevention of excitement shortens the course
- Typical course of severe disease—2 to 6 weeks; may be fatal in patients that develop severe pneumonia, affecting multiple lung lobes

KEY POINTS

- Isolate patient from other animals; infected dogs can transmit the disease-causing virus and/or bacteria before onset of clinical signs and afterward until immunity develops
- Patients with uncomplicated disease should respond to treatment in 10 to 14 days
- Once infection spreads in a kennel, it can be controlled by removing all dogs from the premises for 1 to 2 weeks and disinfecting with commonly used chemicals, such as sodium hypochlorite (bleach; 1:30 dilution), chlorhexidine, or benzalkonium (NOTE: never mix disinfectants; follow directions for use carefully)